

Briefing To Embassy Representatives On The Refocused Strategic Defense Initiative



28 MAR 91

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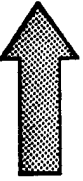
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BRIEFING AGENDA



-  • **Emerging Strategic Environment**
- **New SDI Policy Framework**
- **Program For GPALS**
- **GPALS And Allies And Friends**
- **GPALS And Soviets**



HISTORY OF THE PRESIDENT'S DECISION ON GPALS



March 1989

- National Security Strategy Review Completed

June 1989

- Presidential Guidance On Strategic Modernization And The SDI Program

Fall-Winter 1989-90

- Independent Review Of SDI Program Conducted (Cooper Study)

Spring-Summer 1990

- OSD Policy / Strategy And Technical Feasibility Analysis Conducted

Fall Winter 1990

- SDIO Study Of GPALS Technology / Architecture Conducted
- OSD And SDIO Studies Results Briefed To SEDCEF / DEPSECDEF / Joint Chiefs Of Staff / Others



HISTORY OF THE PRESIDENT'S DECISION ON GPALS (Cont'd)

- | | |
|-----------------|--|
| 3 January 1991 | <ul style="list-style-type: none">• GPALS Briefed To The President, Cabinet Officers, And Senior Advisors |
| 18 January 1991 | <ul style="list-style-type: none">• First Destruction Of An Enemy Ballistic In Flight By An Anti-ballistic Missile |
| 29 January 1991 | <ul style="list-style-type: none">• GPALS Introduced To The Public In The State-of-the-Union Address |

"... Looking Forward, I Have Directed That The SDI Program Be Refocused On Providing Protection From Limited Ballistic Missile Strikes, Whatever Their Source. Let Us Pursue An SDI Program That Can Deal With Any Future Threat To The United States, To Our Forces Overseas And To Our Friends And Allies."

*President George Bush
State Of The Union Address
29 JAN 91*



SDI PLANNING ASSUMPTIONS IN THE 1980s



- **Adversarial Relationship Drove Strategic Competition**
- **SDI Program Was Designed To Cope With**
 - **Unconstrained Soviet Strategic Offensive Forces**
 - **Unconstrained Soviet Countermeasures Program**

Therefore - -

- **We Planned For Phased Defensive Deployments
(Phase I, II, III, ...) Of Increasing Capability To Counter
An Unconstrainable Soviet Threat**



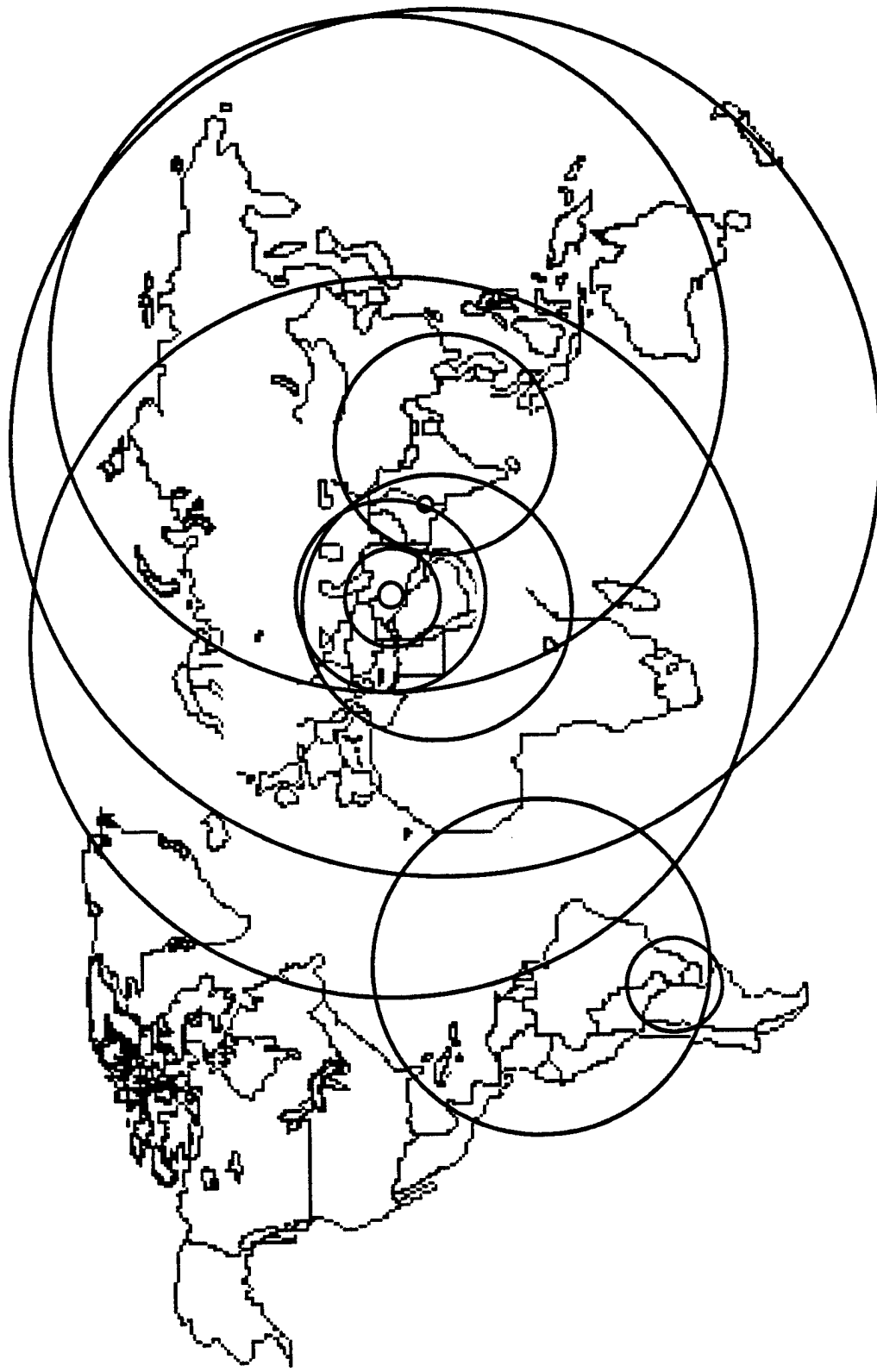
CHANGES IN THE STRATEGIC ENVIRONMENT



- **Evolving East - West Relations Changes Calculus**
 - **Soviet Union Will Retain Large, Modern Strategic Forces**
 - **Political Instabilities Increase Concern About Soviet Use Of Ballistic Missiles**
- **Ballistic Missile Proliferation A Growing Threat To U.S.**
 - **Directly Threatens The Soviet Union**
- **Threat Of Third Country Attacks Increasing**



THIRD WORLD AND CHINA BALLISTIC MISSILE CAPABILITY: A REPRESENTATIVE LOOK





FUTURE DEVELOPMENTS AFFECTING BALLISTIC MISSILE CAPABILITY

- Increased Range
- Accuracy Improvement
- Payload Variation
 - NBC
 - Conventional
- Extensive Networks Exist For Trade In Advanced Technology
 - Missile Design
 - Space-launch Programs
 - Individual Components



AVIATION WEEK INTERVIEW OF **LT GEN HORNER**

"I Underestimated The Political Impact Of the Scud... A Lousy Weapon, A Terror Weapon"... A Miscalculation... Defused Only By The Success Of Patriot... Patriot Success Also has Exposed A Hole In The Allied Arsenal, Patriot Is A Point Defense Weapon, Areas To Be Defended In Saudi Arabia Are Concentrated In A Few, Small Clusters. If The Allied Military Targets Had Been Spread Out, There "Wouldn't Be Enough Patriots In The World To Defend" Them All.

In 15 To 20 Years, When Very Accurate Missiles With Mass Destruction Warheads Are Available To Third-World Nations, The U.S. Will Need A Regional, Wide Area Air Defense Force To Duplicate On A Grand Scale The Patriot's "Pivotal Role Of Defanging" The Scud.

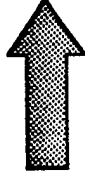
**Lt Gen Charles A. Horner,
Commander, U.S. Central Command
Tactical Air Forces
Aviation Week And Space Technology
11 Feb 1991**



BRIEFING AGENDA



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PROGRAM FOCUS



Objective

- Protect Against
 - Ballistic Missile Attacks On U.S. Forces Overseas And U.S. Friends / Allies
 - Soviet And Third Country Accidental, Unauthorized And / Or Limited Ballistic Missile Attacks On The United States

**Global Protection Against Limited Strikes
GPALS**



POLICY / STRATEGY FRAMEWORK

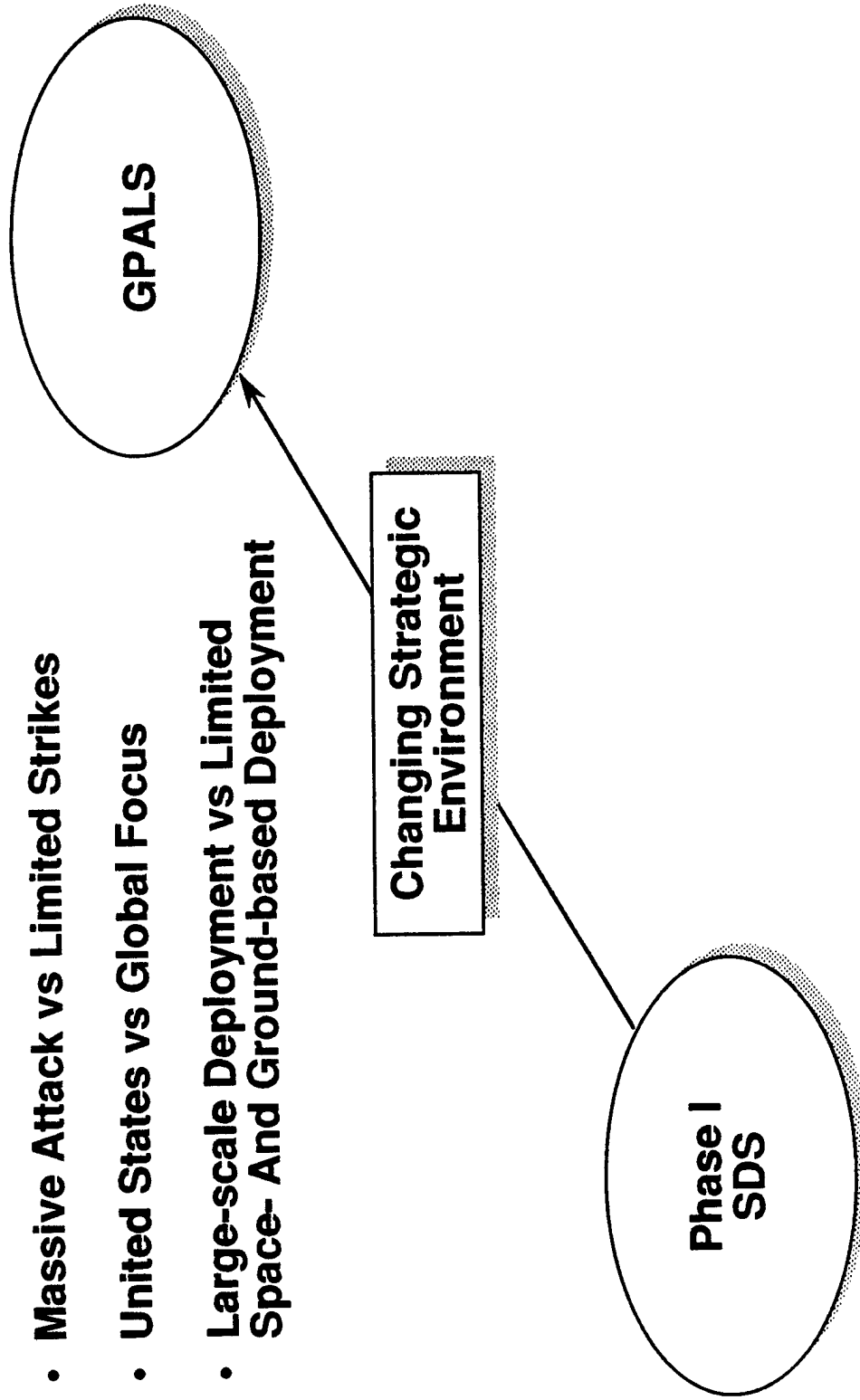


- **U.S. Requires A Balanced Strategic Force Structure:
Offense *And* Defense**
- **GPALS Provides An Appropriate Level Of Defense
Within U.S. Strategic Force Structure**
- **Phase I Requirement Remains Valid**
- **Defense Deployment Beyond GPALS Depends On
 - **Decision To Pursue More Ambitious Objectives**
 - **Political Developments In Soviet Union**
 - **Progress In START / DST**
 - **Third World Threat****



WHAT DOES "REFOCUS" MEAN ?


- Deterrence vs Protection
- Massive Attack vs Limited Strikes
- United States vs Global Focus
- Large-scale Deployment vs Limited Space- And Ground-based Deployment





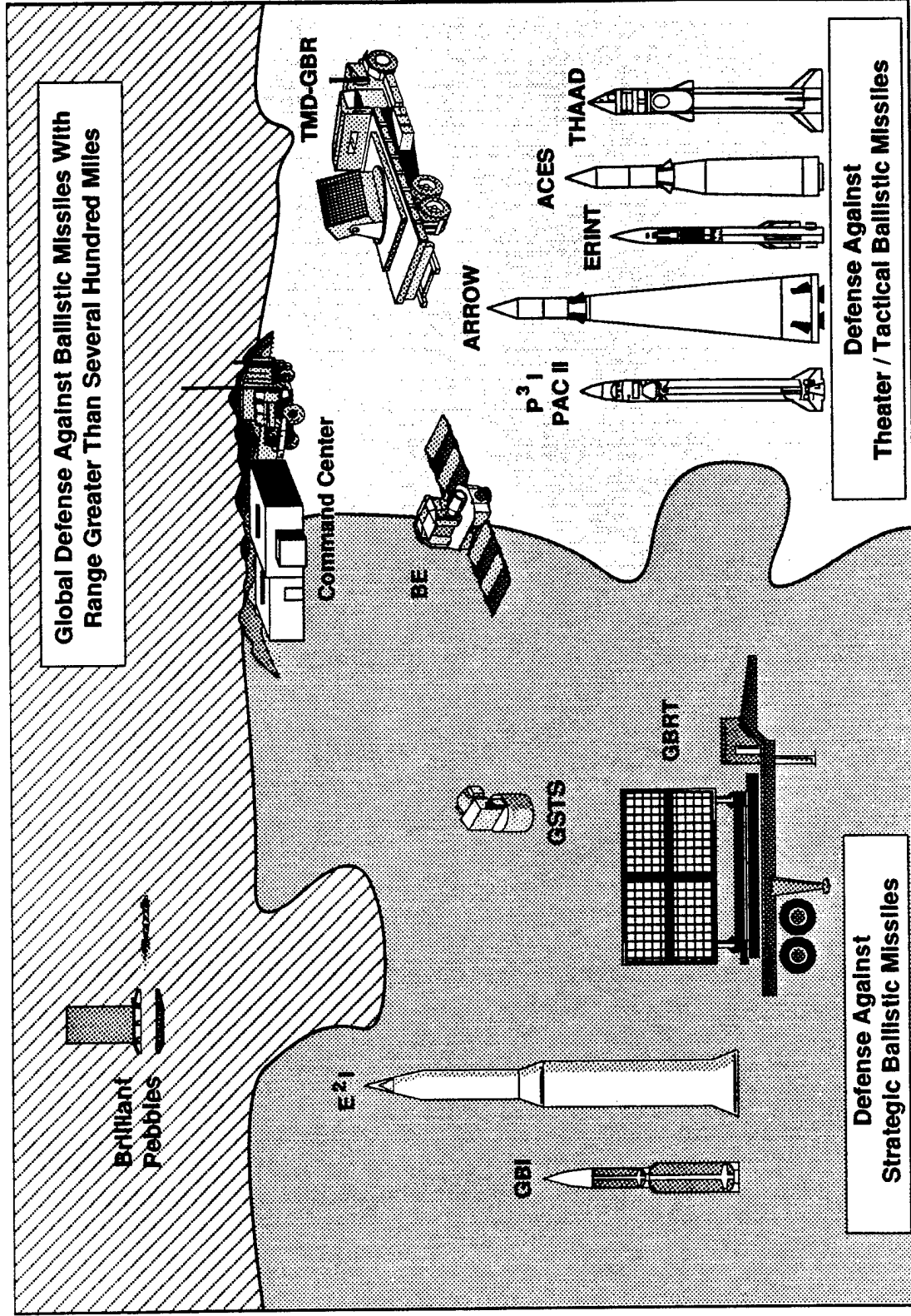
BRIEFING AGENDA



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GLOBAL PROTECTION AGAINST LIMITED STRIKES (GPALS)





A REPRESENTATIVE GPALS DEPLOYMENT

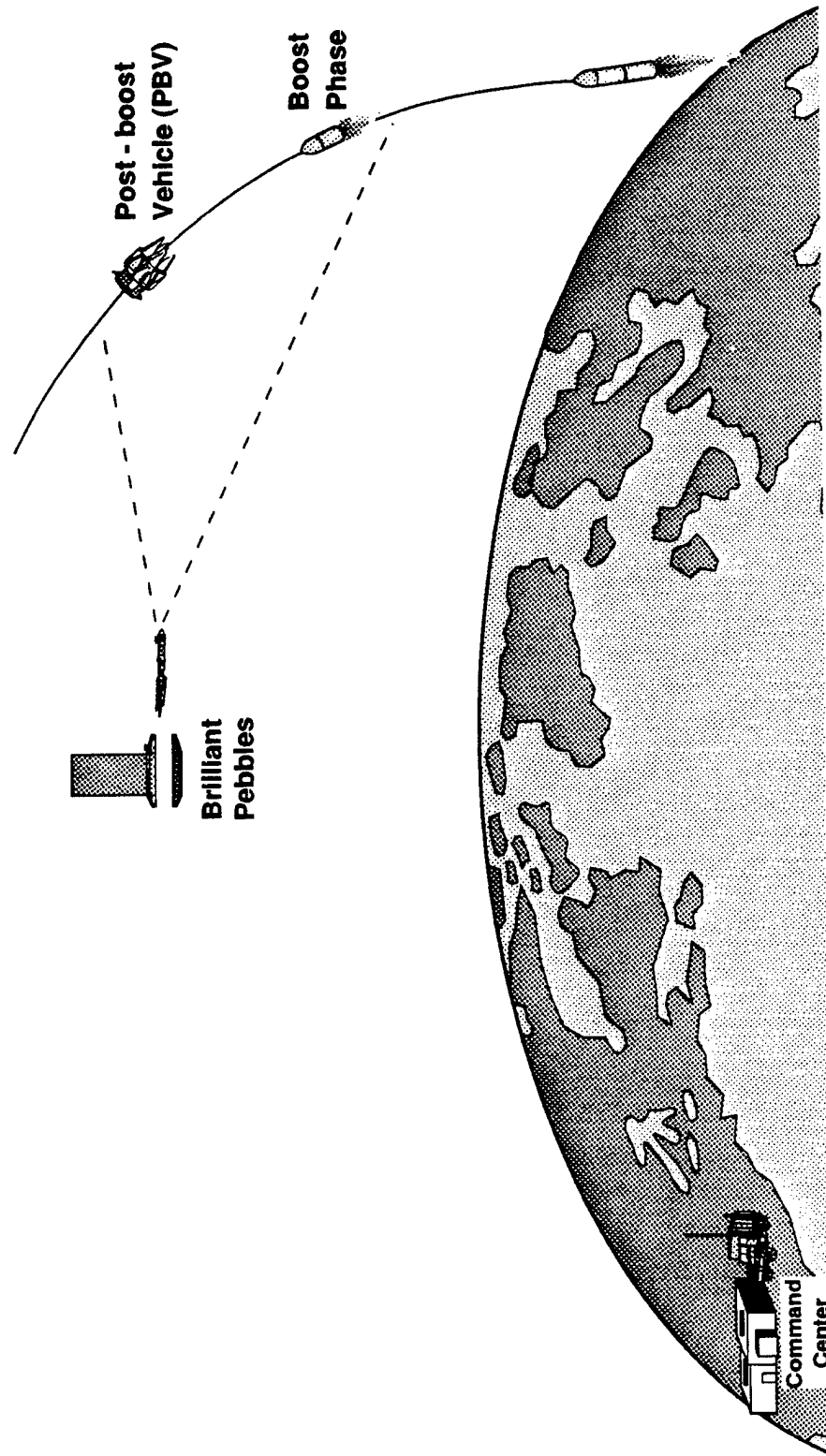


- **Transportable Surface-based Defenses Against Theater / Tactical Ballistic Missiles**
 - Owned By U.S. And U.S. Allies
- **Ground-based Defense Against Strategic Ballistic Missiles**
 - 50% Fewer Interceptors Than For Phase One
 - Space- And Surface-based Sensors
- **Brilliant Pebbles - Global Defense Against Ballistic Missiles With Range Greater Than Several Hundred Miles**
 - 75% Fewer Pebbles Than For Phase One



GPALS ELEMENTS - BRILLIANT PEBBLES

**Global Defense Against Ballistic Missiles With
Range Greater Than A Few Hundred Miles**





GPALS ELEMENTS - GROUND BASED

Defense Against Strategic Ballistic Missiles

Brilliant Eyes



Reentry Vehicles (RV)
& Decoys

GSTS

Post - boost
Vehicle (PBV)

Boost
Phase

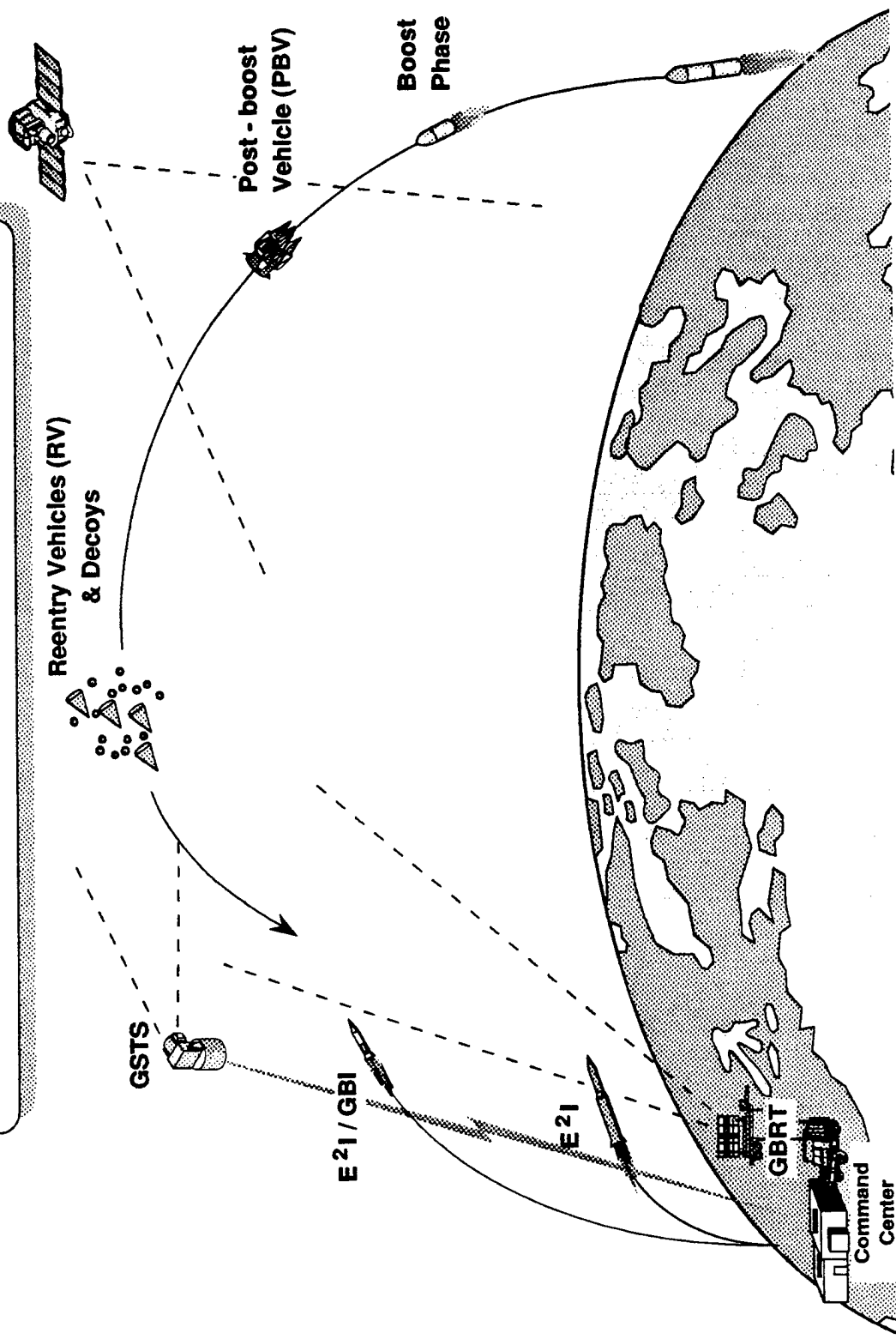
E²I / GBI

E²I

GBRT

Command
Center

jm-14224a(*) / 032791





GPALS ELEMENTS - STRATEGIC

Brilliant Eyes



GSTS



E²I / GBI



Brilliant Pebbles

SLBM



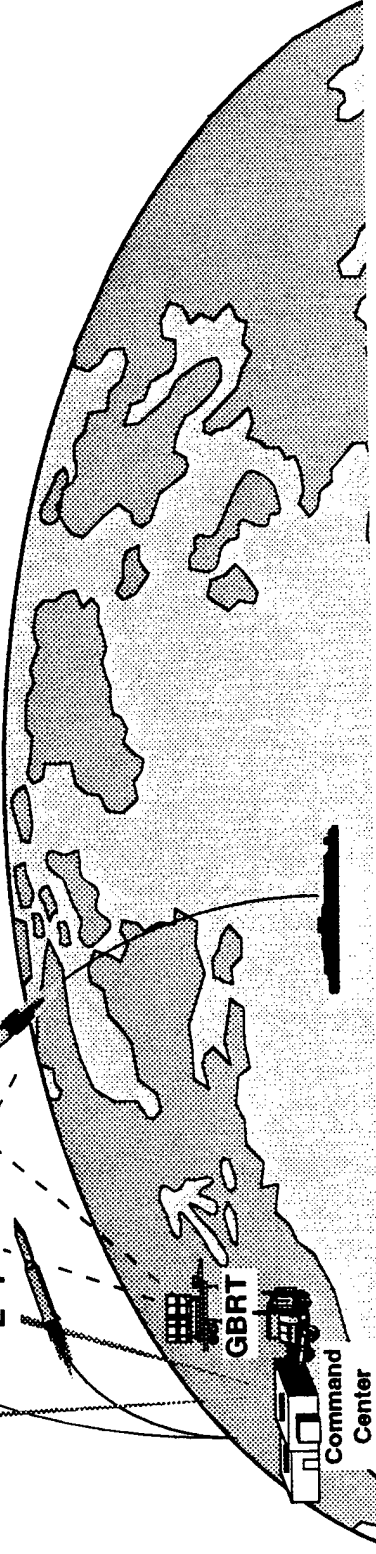
E²I



GBRT



Command Center

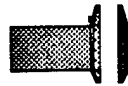




GPALS ELEMENTS - THEATER

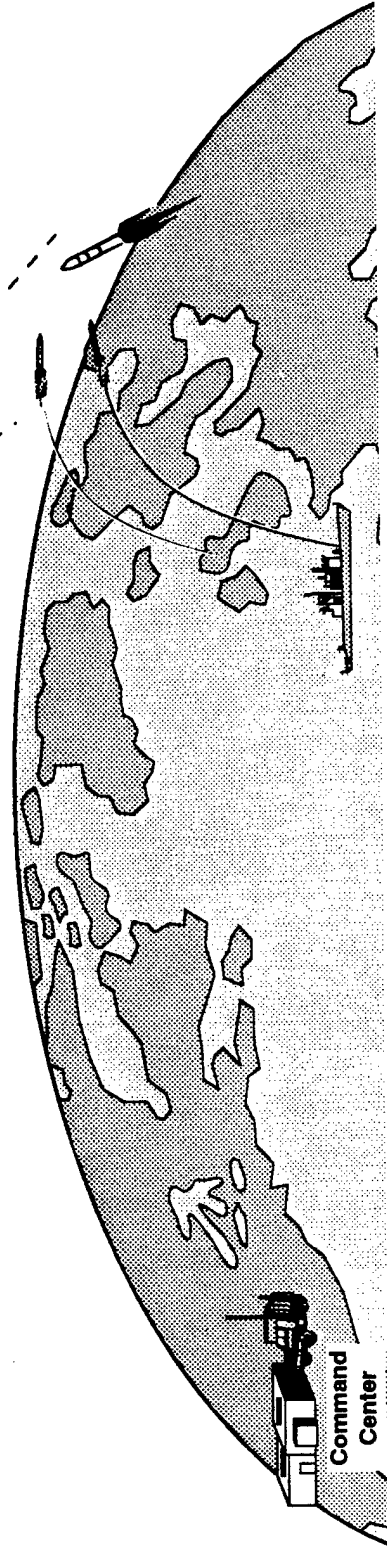
Defense Against Theater /
Tactical Ballistic Missiles

Brilliant Eyes



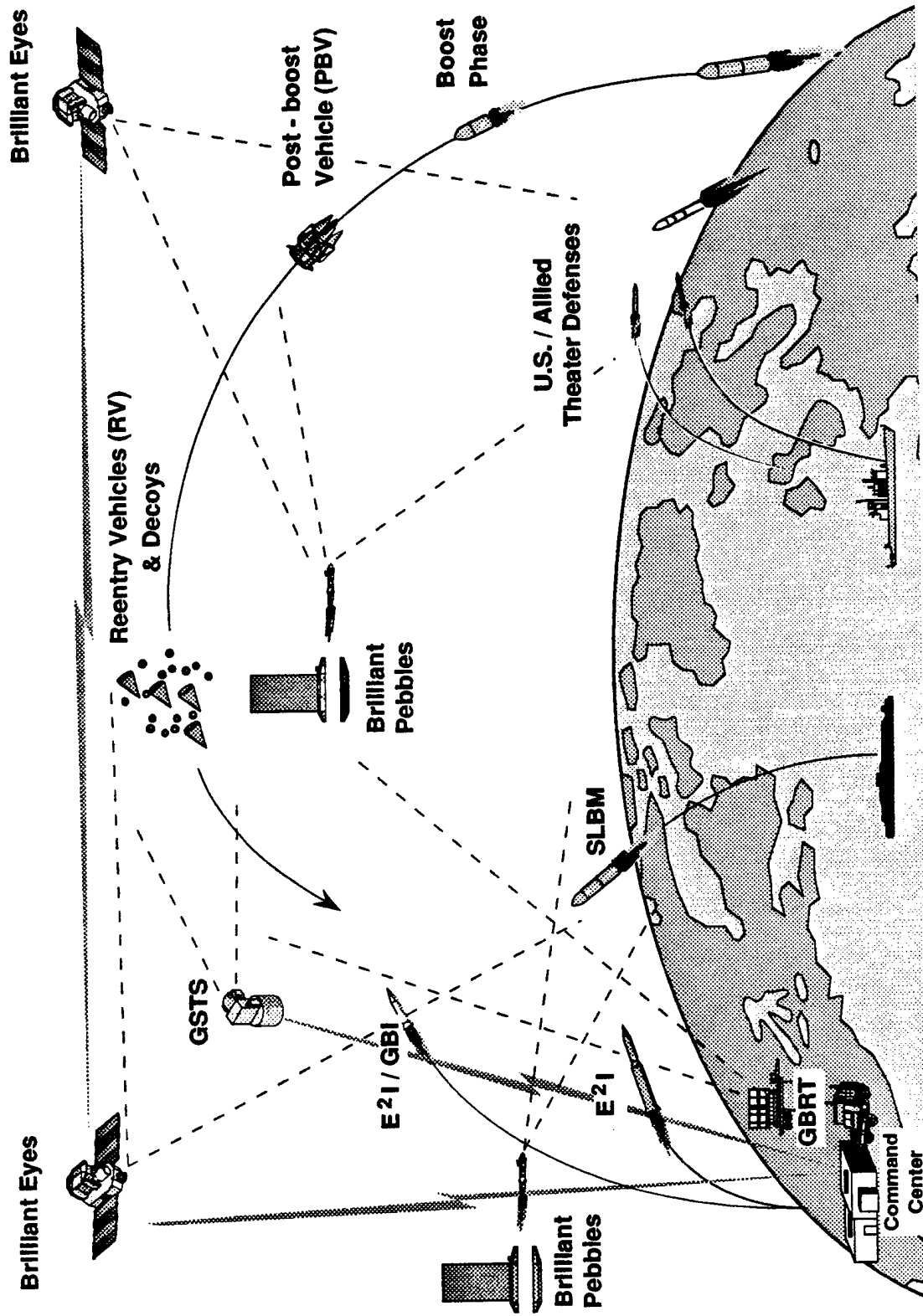
Brilliant
Pebbles

U.S. / Allied
Theater Defenses





GPALS ELEMENTS - STRATEGIC AND THEATER

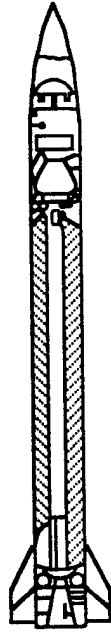




PATRIOT ATM



Patriot ATM



Patriot ATM P³I Concept

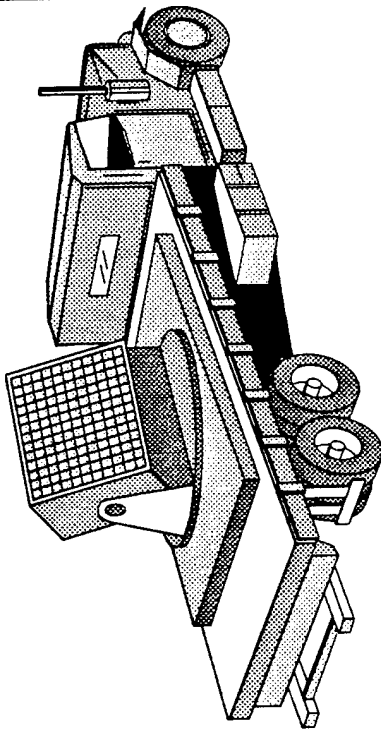
- Multi-mode Seeker
 - Active ka-Band
 - Greater Target Handling
 - Enhanced ECM Capabilities
- Greater Capability Against TBM With Low RCS, High Terminal Velocity And High Angle Of Attack
- Enhanced Fire Control Radar



TMD-GBR



TMD-GBR



Mission

- Search, Acquire And Track Theater Ballistic Missiles
- Provide Timely Launch / Impact Point Prediction
- Provide Interceptor Support Functions
 - Interceptor Fire Control Or Interceptor Radar Cueing (THAAD)
 - Kill Assessment
 - WTA, BM / C3
- Provide Deployable Radars For "Hot Spot" National Emergencies

Characteristics

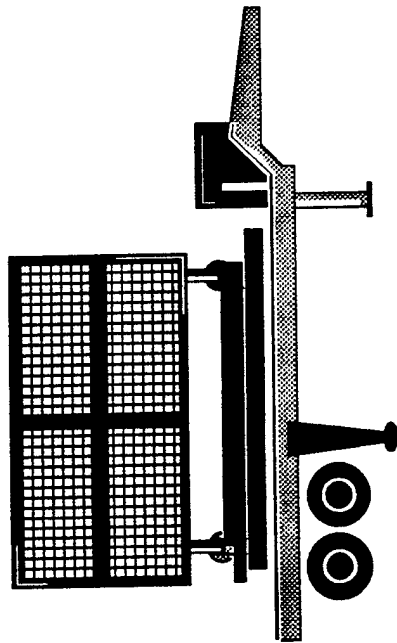
X	
Band	~5 - 10 m ²
Aperture	500 km
Range (Reference)	<25 cm
Range Resolution	0.5 m
Angle Accuracy	Theater Threat
RCS Of Target	Very Wide
Bandwidth (Coherent)	15 dBsm
Signal-to-noise Ratio	
Coverage	± 55
Azimuth	± 40
Elevation	



GROUND-BASED RADAR TRANSPORTABLE (GBRT)



GBRT



Mission

- Acquire, Track, And Provide Precommit For E²I Against Short Time Of Flight SLBMs
- Provide Kill Assessment And Initialization For E²I
- Provide Exoatmospheric E²I Cluster Precommit
- Provide Limited Exoatmospheric Search For Independent Underlay
- Provide Additional Phenomenology As A Hedge Against Offensive Response To Optic Elements

Characteristics

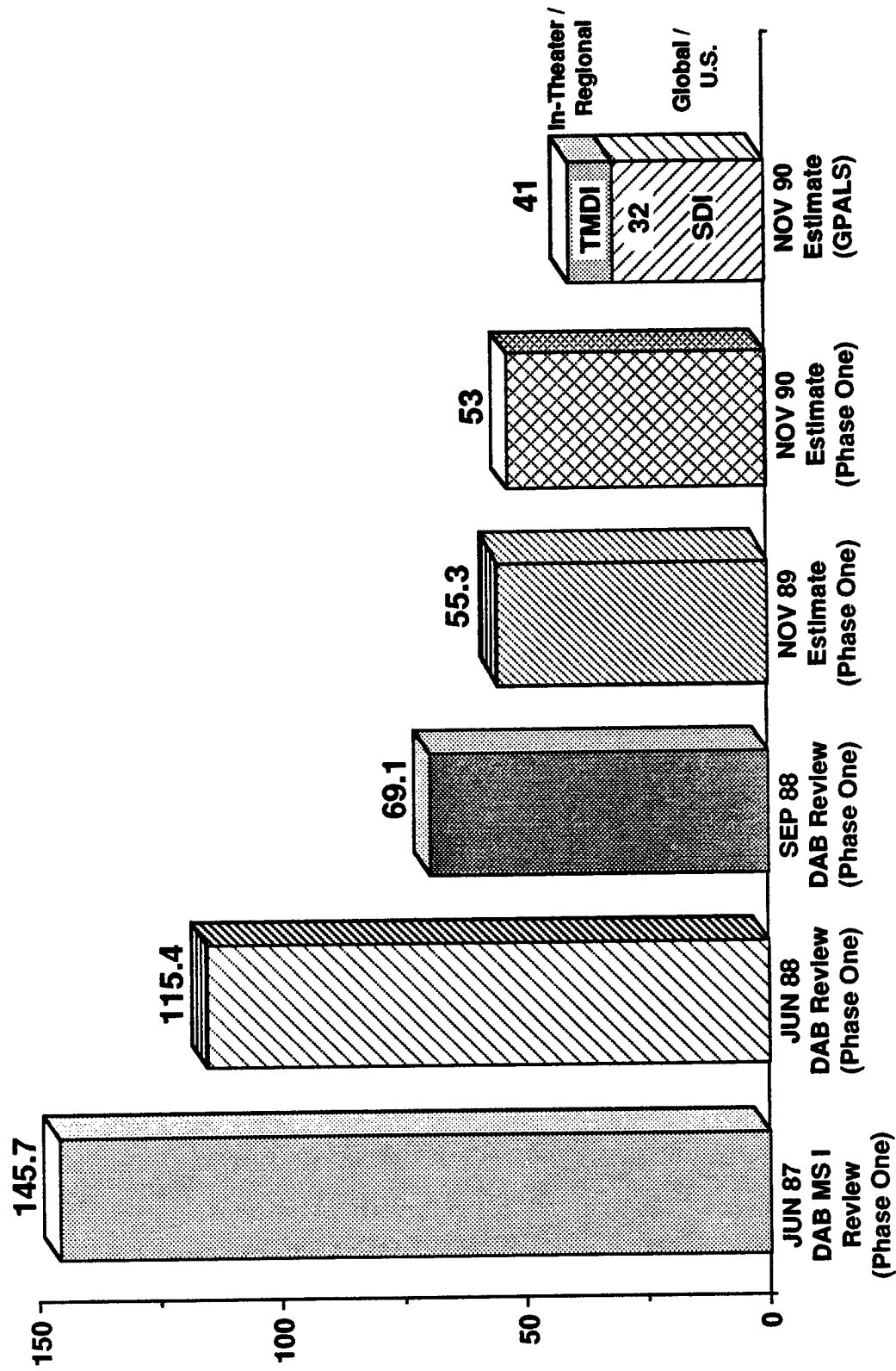
- | | |
|-------------------------|--------------------|
| • Band | X |
| • Range (Reference) | 1,000 km |
| • Range Resolution | <25 cm |
| • Angle Accuracy | 0.5 mrad |
| • Array Aperture | ~20 m ² |
| • RCS Of Target | GPALS Threat |
| • Bandwidth (Coherent) | Very Wide |
| • Signal-to-noise Ratio | 15 dB |
| • Coverage Face | |
| - Azimuth | ±55° |
| - Elevation | ±40° |



SYSTEM ACQUISITION COST EVOLUTION

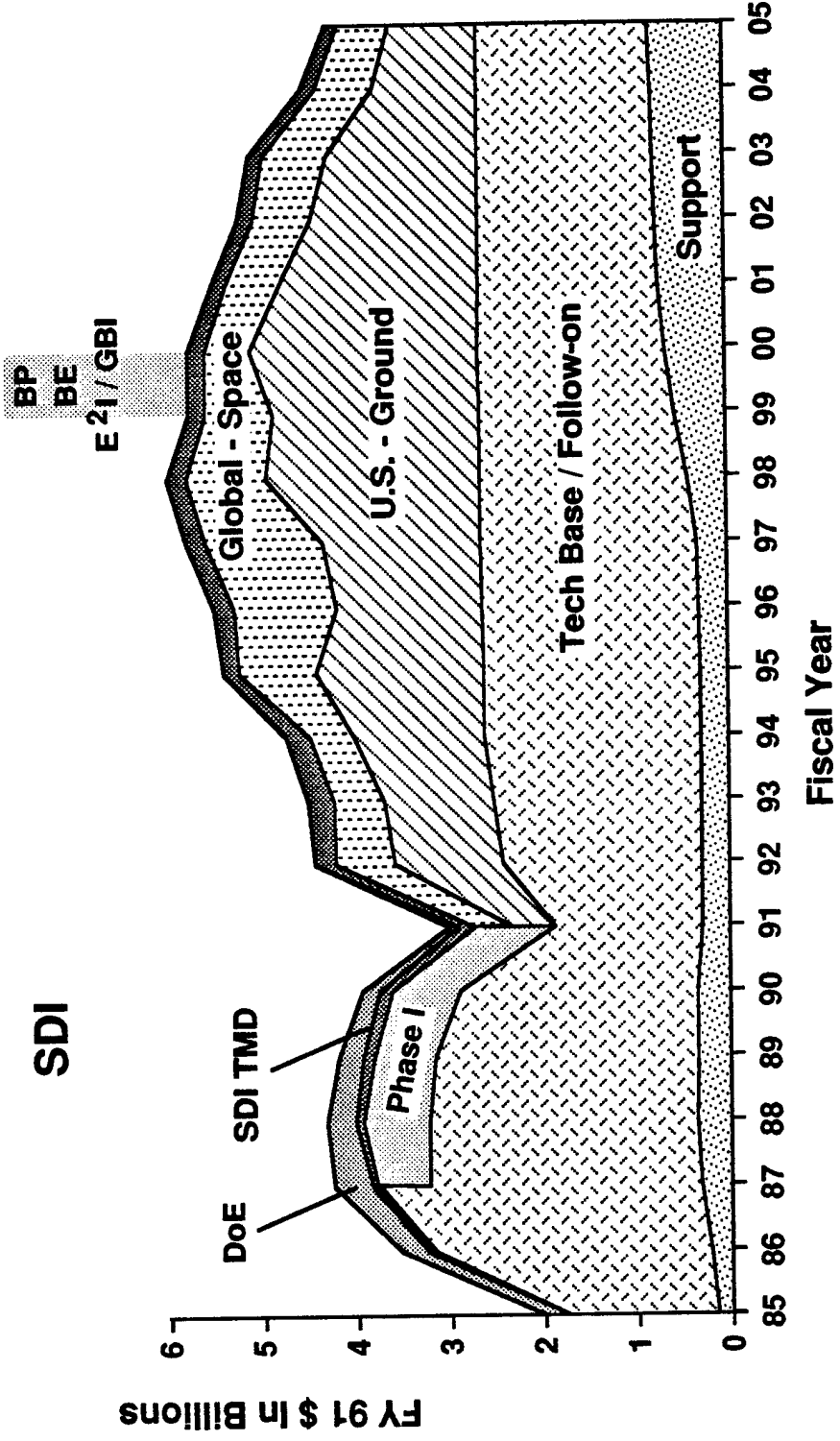
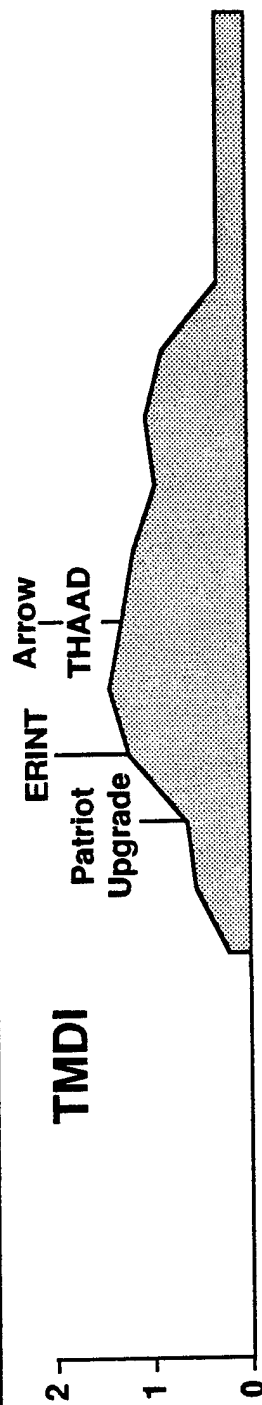


FY 88 \$ In Billions



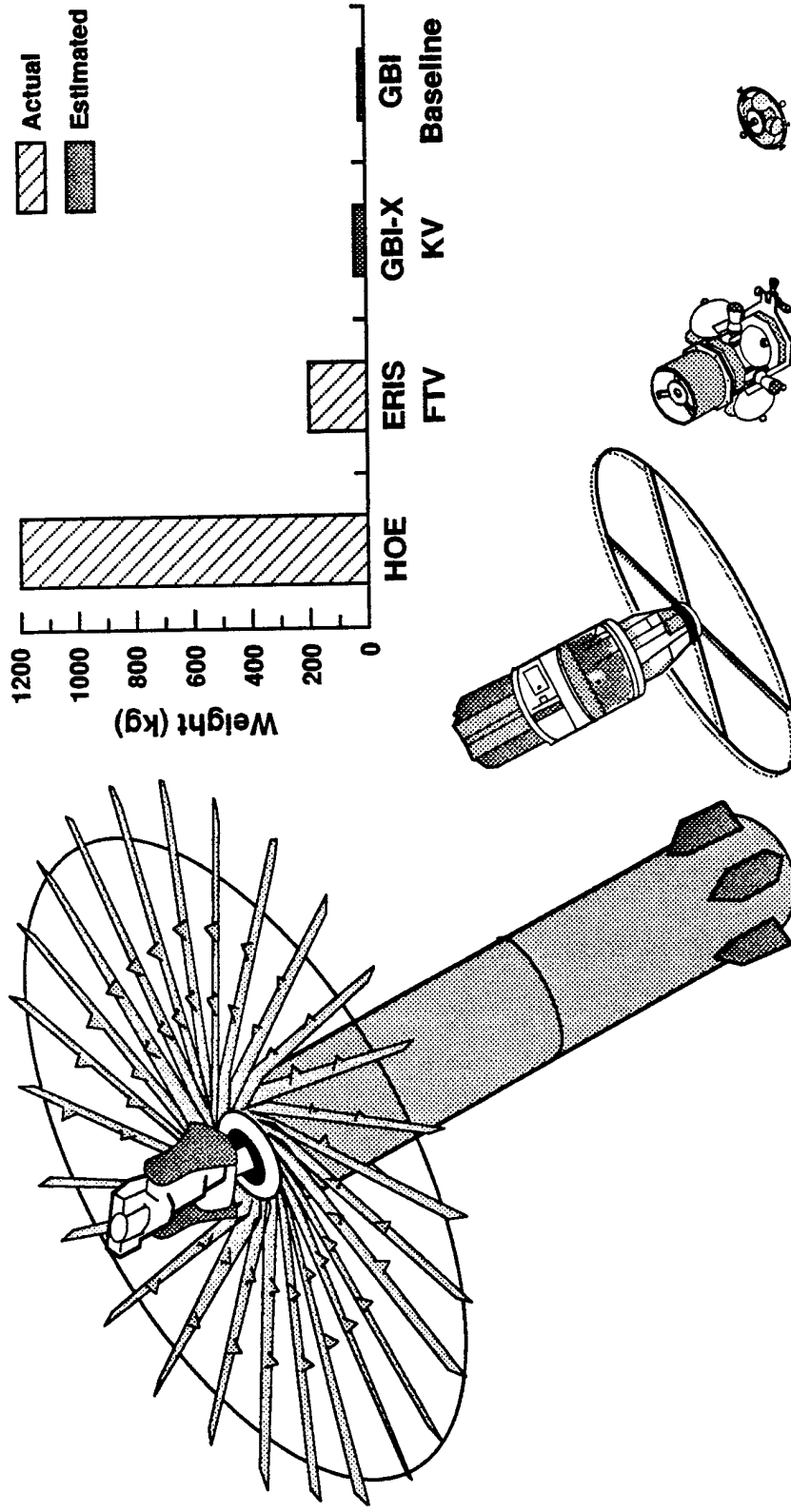


BMD BUDGET EVOLUTION





GBI TECHNOLOGY HISTORY



Technology	1978	1986	1990	1994
GBI Evolution	HOE Kill Vehicle	ERIS FTV Kill Vehicle	GBI-X Kill Vehicle	GBI Baseline Kill Vehicle
Proven / Tested	1984	1991	1995	1998



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GPALS - ALLIES AND FRIENDS



- GPALS Would Contribute To Protection Of U.S. Allies / Friends
 - GPALS Sensors Could Provide Threat Information To
 - U.S. Forces
 - Potentially To Forces Of Allies / Friends
 - Brilliant Pebbles Could Provide Continuous, Global Interdiction Capability Against Missiles Of Ranges > 600 - 800 km
 - Surface-based Theater Systems Could Defend Against Theater / Tactical Ballistic Missiles



THEATER MISSILE DEFENSE (TMD)

U.S. Perspective

- **U.S. SDI Program Provides Advanced Technology / Foundation For Theater Ballistic Missile Defense Systems**
- **For Past Four Years, SDI Has Included A Growing TMD Program
 - **Architecture Studies, Test Beds, Technology Demonstrations**
 - **Substantial Involvement Of Allied Companies And Laboratories****
- **Increasing U.S. Priority On TMD Programs**
- **Congress Appropriated Funds To Accelerate TMD**
- **U.S. Plans To Deploy TMD Systems In Near Term**
- **U.S. Forces Forward Deployed In Peacetime Likely To Have TMD As Part Of Equipment**
- **Highly Transportable U.S. Defenses Deployable To Any Region In Times Of Heightened Tensions**



PARTICIPATION OF ALLIES / FRIENDS



- Allied Participation In SDI Predates Refocus Toward GPALS
- U.S. Open To Many Avenues Of Participation And Cooperation
 - Wants To Discuss With Allies / Friends Their Interests / Ideas
- General Areas For Participation In GPALS
 - Participation In SDIO's Basic Research & Development Programs For GPALS
 - Government-To-Government Cooperation, Specifically In TMD Aspects Of GPALS
 - Independent Acquisition Of TMD Systems Which Would Be Interoperable With U.S. GPALS Elements
 - Indigenously Developed
 - Purchased From Another Country Such As U.S.